



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/782,001	02/20/2004	James J. Baker	84,076	5321

7590 08/22/2006

Office of Counsel Code OC4
Naval Surface Warfare Center
Indian Head Division
101 Strauss Ave., Bldg. D-31
Indian Head, MD 20640-5035

EXAMINER

GELLNER, JEFFREY L

ART UNIT PAPER NUMBER

3643

DATE MAILED: 08/22/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/782,001

Applicant(s)

BAKER ET AL.

Examiner

Jeffrey L. Gellner

Art Unit

3643

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 June 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-13 and 21-27 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-13, 21-27 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-3, 5, 7, 8, and 27 are rejected under 35 U.S.C. 102(e) as being anticipated by Desilets et al. (US 2004/0040637 A1).

As to claims 1-3 and 27, Desilets et al. disclose an energetic composition (abstract) comprising a high energy material, HMX or RDX (para. 0009) and at least one nanotube structure comprising the high energy material (para. 0007-0009).

As to claims 5, Desilets et al. disclose a plurality of nanotubes (para. 0007).

As to claims 7 and 8, Desilets et al. disclose the nanotubes being inert (from “carbon nanotube” of para. 0007).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Desilets et al. (US 2004/0040637 A1) in view of Becuwe (US 5,034,072).

Art Unit: 3643

As to claim 4, the limitations of claim 1 are disclosed as described above. Not disclosed is the composition further comprising a melt temperature lowering component. Becuwe, however, discloses a composition with HMX or RDX that contains a temperature lowering component (“oxynitrotriazole” of col. 3, lines 32-37). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the composition of Desilets et al. by adding a temperature lowering component so as to lower the flame temperature so as to reduce erosion of surrounding structures (see Becuwe at col. 3, lines 32-37).

Claims 6 and 23-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Desilets et al. (US 2004/0040637 A1).

As to claim 6, the limitations of claim 1 are disclosed as described above. Not disclosed is the composition with nanotubes being a diameter of from 300 to 1000 micrometers. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the composition of Desilets et al. by using the nanotubes with a diameter of from 300 to 1000 micrometers so as to effective pyrotechnic effect (see para. 0017 for uses).

As to claims 23-25, the limitations of claim 1 are disclosed as described above. Not disclosed are the diameter of the nanotubes being 50 to 100 microns; having a diameter for a flame to enter; and, having a wall thickness of a few tens of nanometers. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the composition of Desilets et al. to possess the above characteristics so as to optimize the use of the material.

Art Unit: 3643

Claims 9 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Desilets et al. (US 2004/0040637 A1) in view of Nix et al. (US 3,389,025).

As to claims 9 and 10, the limitations of claim 1 are disclosed as described above. Not disclosed are the nanotube structures being substantially longitudinally aligned. Nix et al., however, discloses a exothermic composition with alignment of internal structures (col. 1, lines 53-57). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the composition of Desilets et al. by having the nanotube structures aligned along a direction of increased burn rate so as to achieve optimum or desired burn characteristics.

Claims 11-13 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Desilets et al. (US 2004/0040637 A1) in view of Levinthal (US 4,086,110).

As to claims 11-13 and 26, the limitations of claim 1 are disclosed as described above. Not disclosed is the composition as a solid propellant for a rocket motor system with the nanotubular structures aligned for increase burn rate. Levinthal, however, discloses the use of an HMX, gas generant composition as a solid propellant for a rocket motor system (col. 2, lines 15-19) which would modify the burn rate (from “high energy oxidizer” of col. 2, lines 15-19). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the composition of Desilets et al. by using the composition as a propellant in a rocket motor system which would be a burn rate modifier as disclosed by Levinthal so as to increase use of the composition and to align the nanotubes so as to increase burn rate.

Art Unit: 3643

Claims 21 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Desilets et al. (US 2004/0040637 A1) in view of Adams (US 7,025,840 B1).

As to claims 21 and 22, the limitations of claim 1 are disclosed as described above. Not disclosed is the at least one nanotubular structure being composed or incorporated of the high energy material. Adams, however, discloses a nanotube structure that is composed of or incorporated with a high energy material (col. 3 lines 31-44). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the composition of Desilets et al. by having nanotubular structure being composed of the high energy material as disclosed by Adams so as to increase the combination of strength and durability of the composition (see Adams at col. 5 lines 26-33).

Response to Arguments

Applicant's arguments filed 7 June 2006 have been fully considered but they are not persuasive. Applicants' arguments are: (1) Desilets et al. does not disclose an energetic composition including one or more nanotubular structures comprised of high energy material (Remarks page 10, lines 1-9); and, (2) there is no motivation in Desilets et al. to combine with other references used in the first office action to make a propellant since Desilets et al. is concerned with photoacoustic effects (Remarks pages 9-13).

As to argument (1), Examiner considers the term "comprising" of claim 1, line 3, to be broader than the term "composed of" of claim 21, line 2. "[C]omprising" would include having the energetic composition within the nanotubular structure as disclosed by Desilets et al. Adams discloses nanotubular structures being composed of an energetic composition.

As to argument (2), Examiner considers it obvious to one of ordinary skill in the art to take the disclosure of Desilets et al. and modify the composition for other uses. For example, Adams discloses use of nanotubular structures in ordnance (see Adams at col. 2 lines 60-67).

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

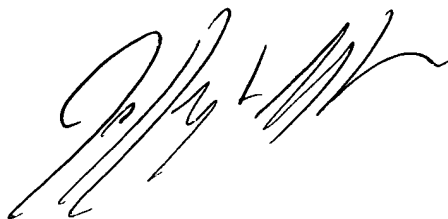
A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeffrey L. Gellner whose telephone number is 571.272.6887. The examiner can normally be reached on Monday-Friday, 8:30-4:00, alternate.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Peter Poon can be reached on 571.272.6891. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 3643

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

A handwritten signature in black ink, appearing to read 'J. Gellner', with a stylized flourish at the end.

Jeffrey L. Gellner
Primary Examiner
Art Unit 3643